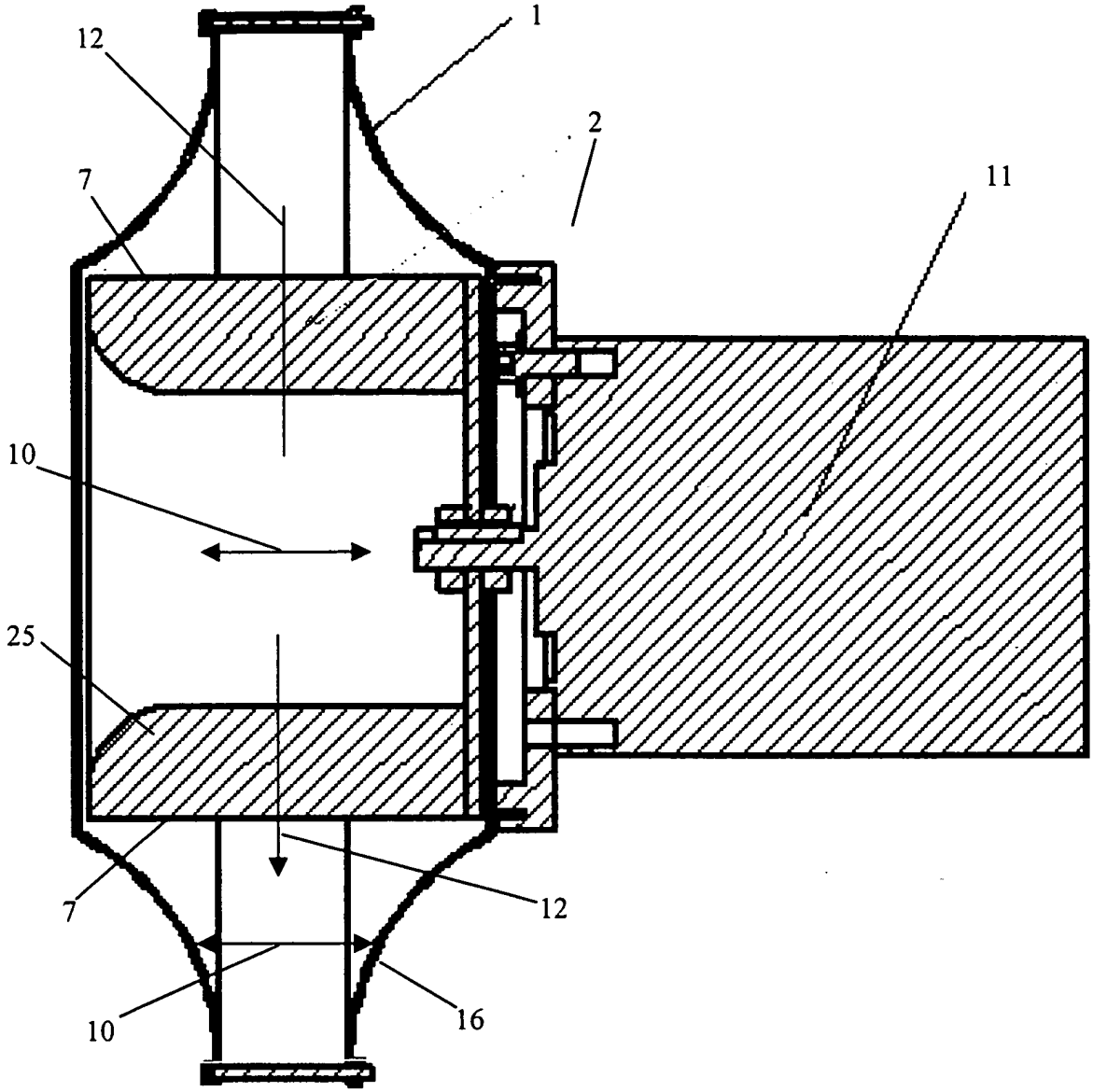


FIG. 1

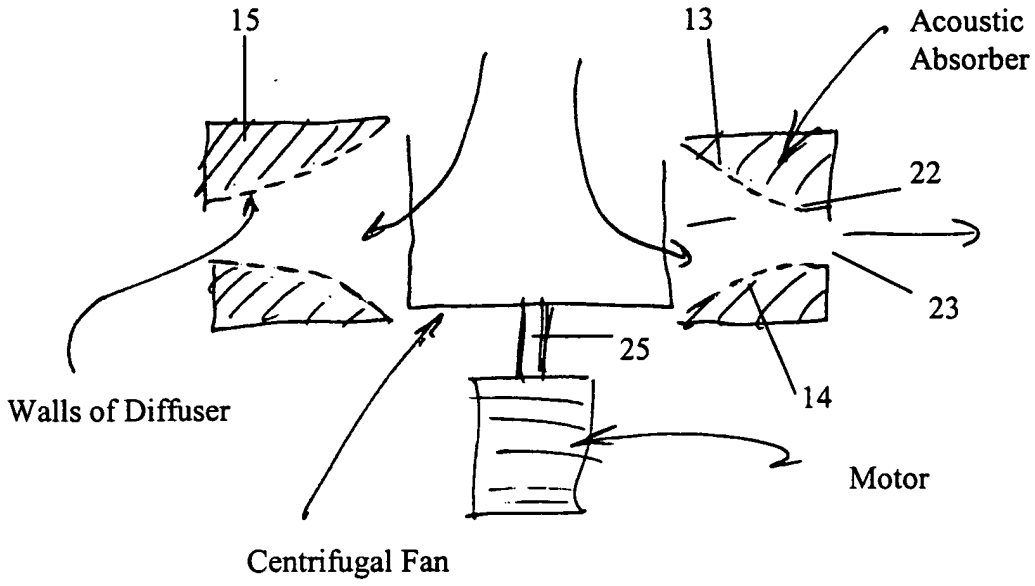

15
13
Acoustic
Absorber
22
23
25
14
Walls of Diffuser
Motor
Centrifugal Fan

FIG. 2

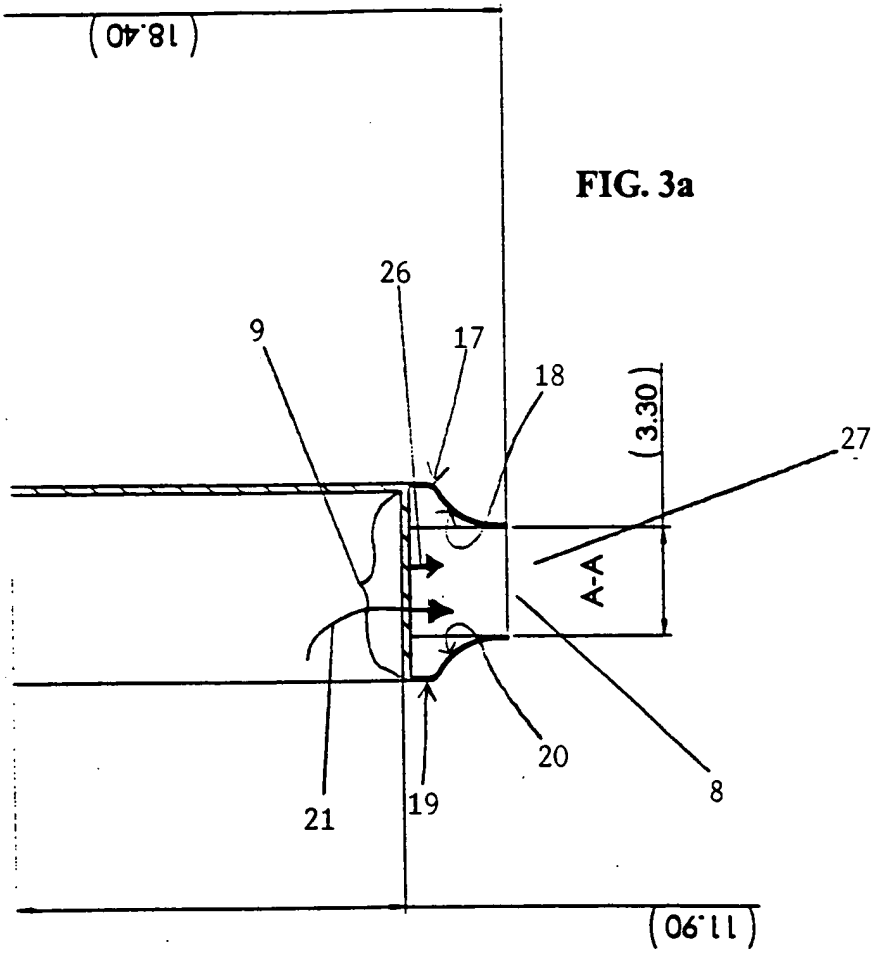
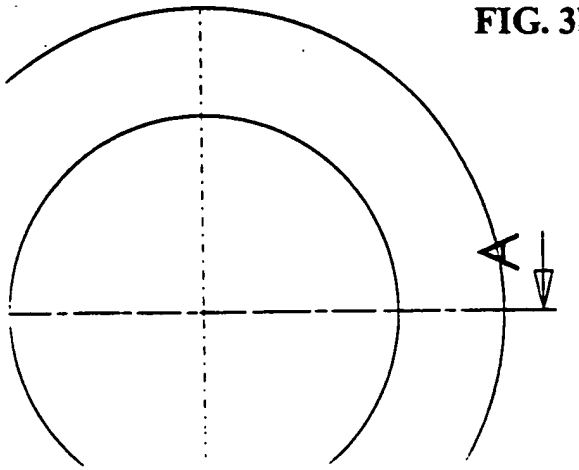
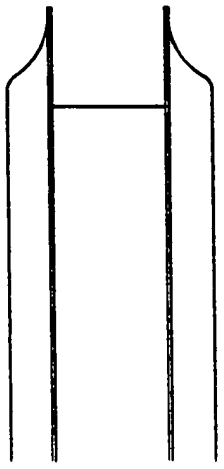


FIG. 3a

FIG. 3c

FIG. 3b





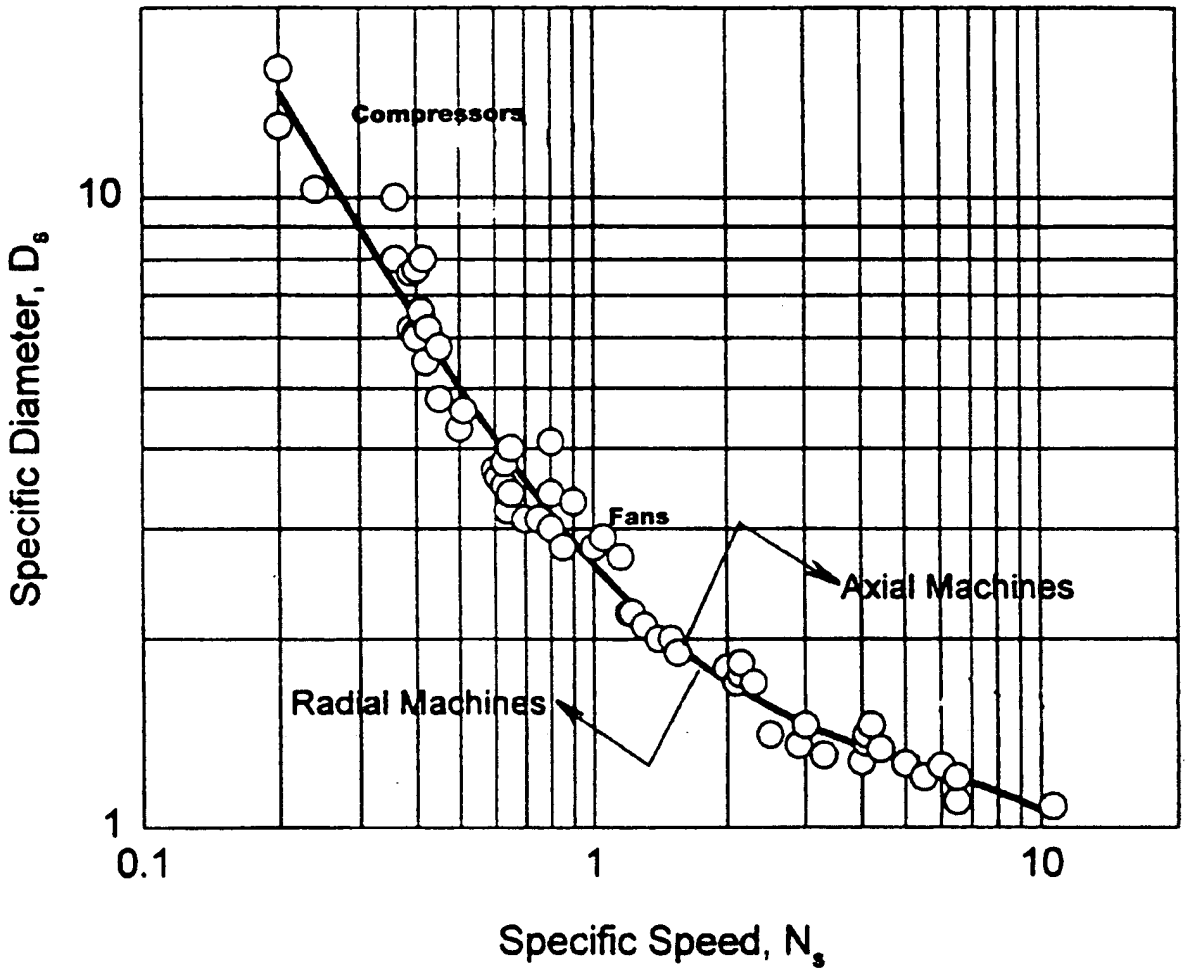

Compressors
Fans
Axial Machines
Radial Machines
10
1
0.1
1
10
Specific Diameter, D_s
Specific Speed, N_s

FIG. 4

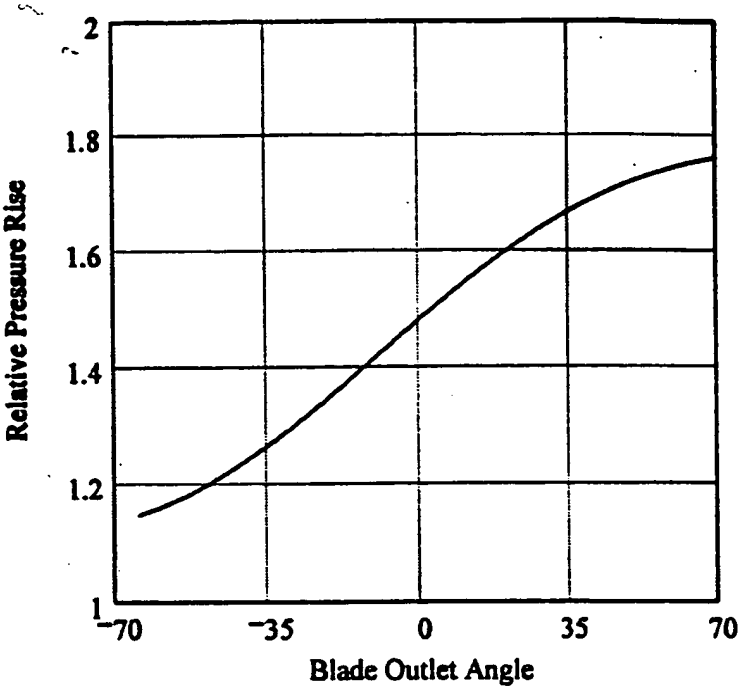

Relative Pressure Rise
2
1.8
1.6
1.4
1.2
1
−70
−35
0
35
70
Blade Outlet Angle

FIG. 5

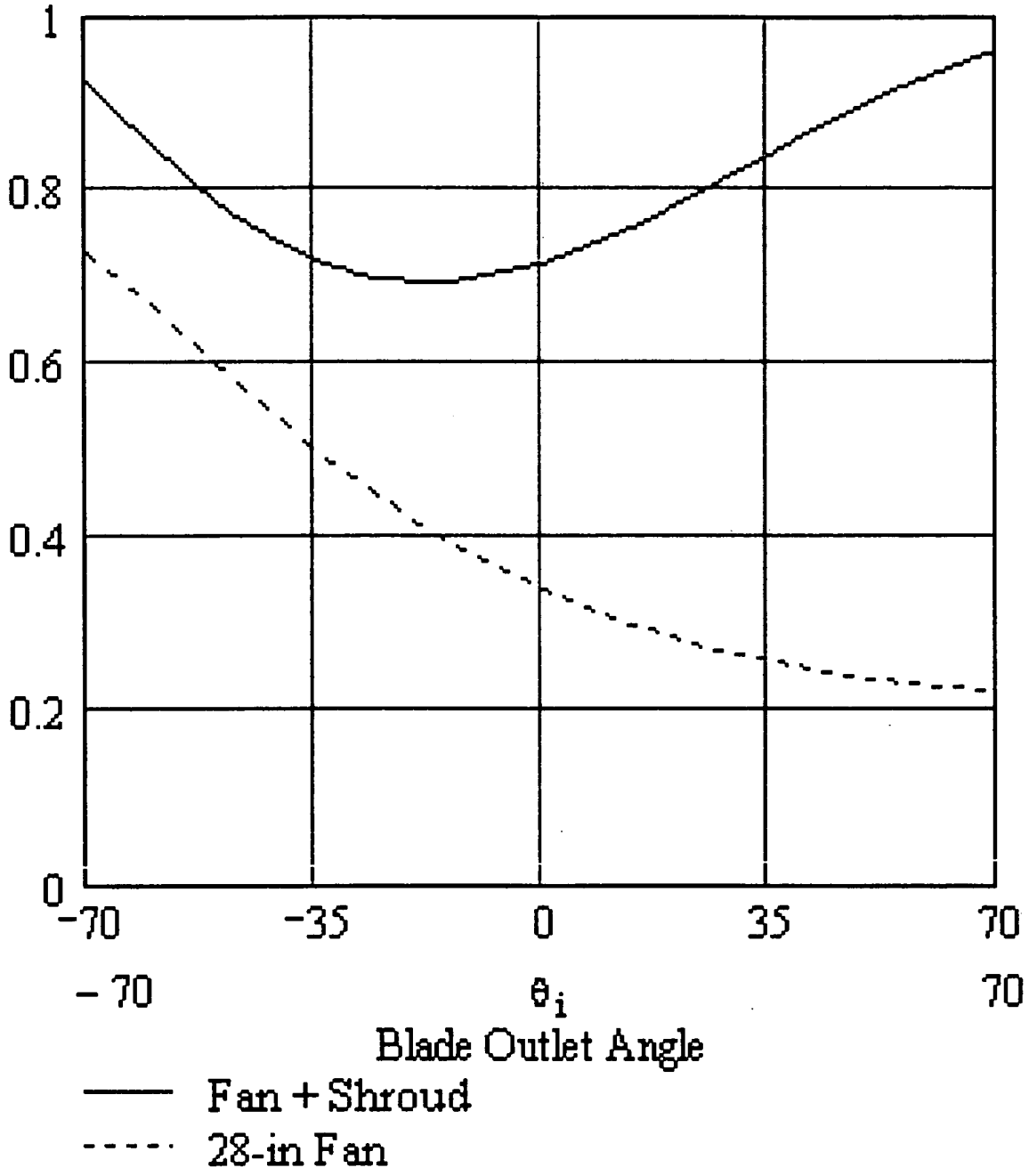

1
0.8
0.6
0.4
0.2
0
-70
-35
0
35
70
-70
θi
70
Blade Outlet Angle
Fan + Shroud
28-in Fan

FIG. 6

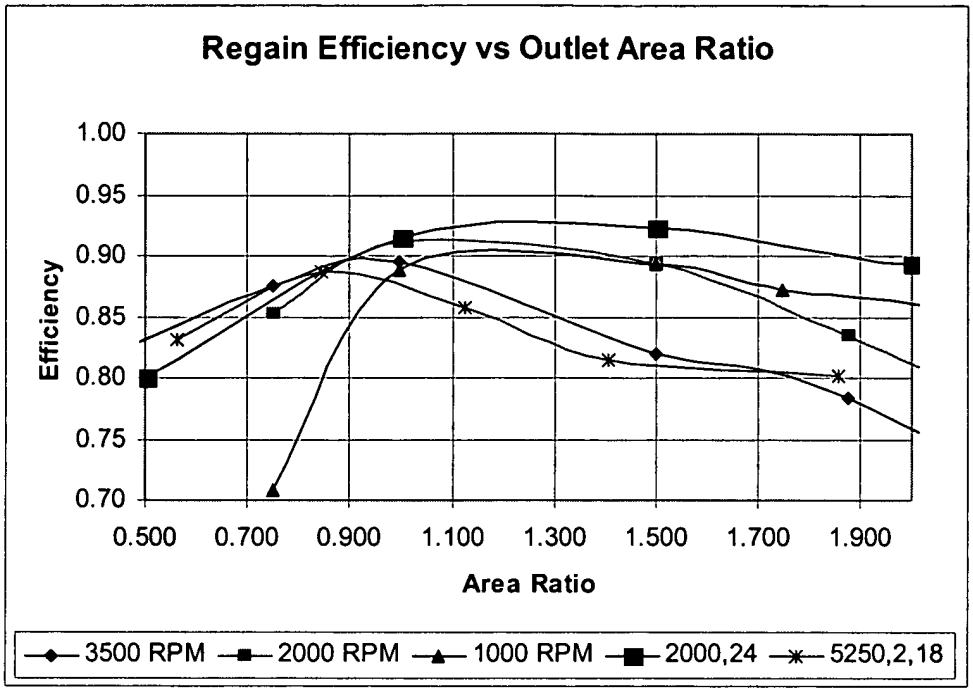

Regain Efficiency vs Outlet Area Ratio
Efficiency
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.500
0.700
0.900
1.100
1.300
1.500
1.700
1.900
Area Ratio
3500 RPM
2000 RPM
1000 RPM
2000,24
5250,2,18

FIG. 7

BEST AVAILABLE COPY

Momentum Diffusion Shroud

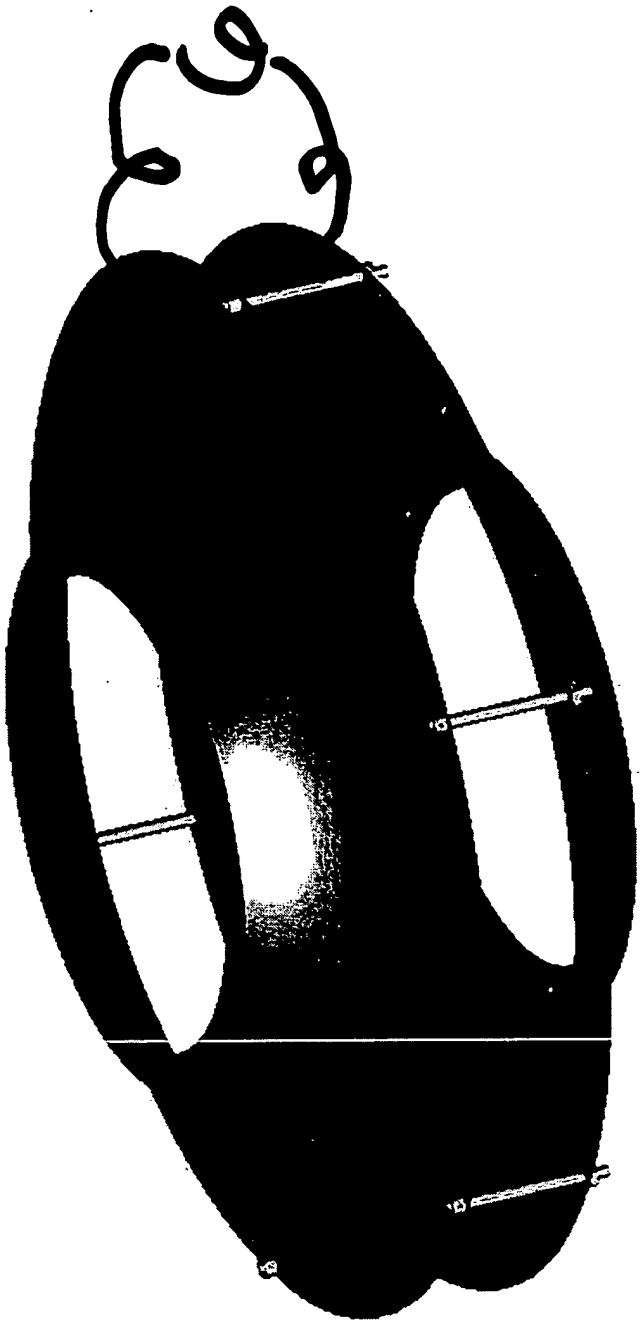


FIG. 8

BEST AVAILABLE COPY

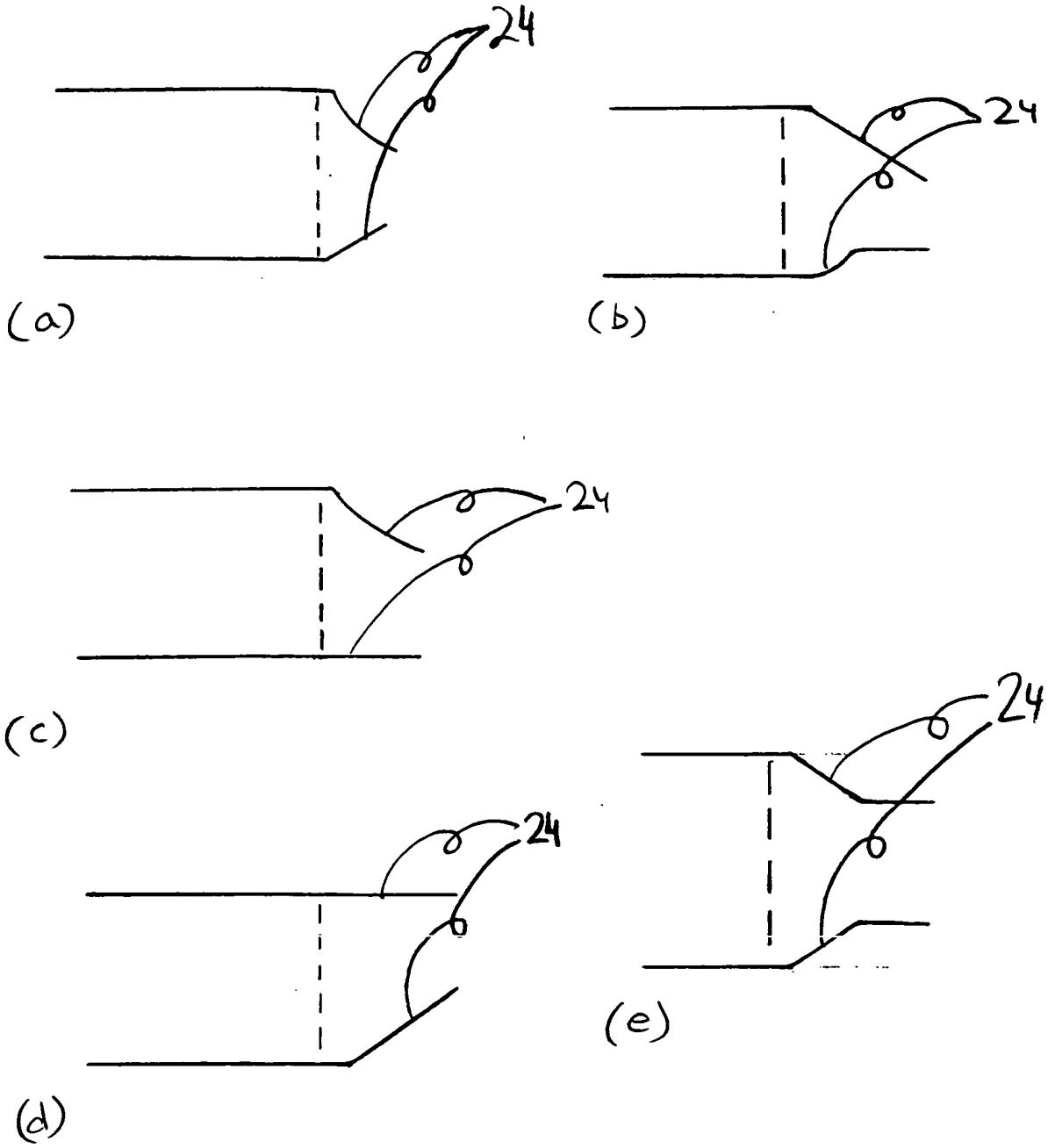


FIG. 9

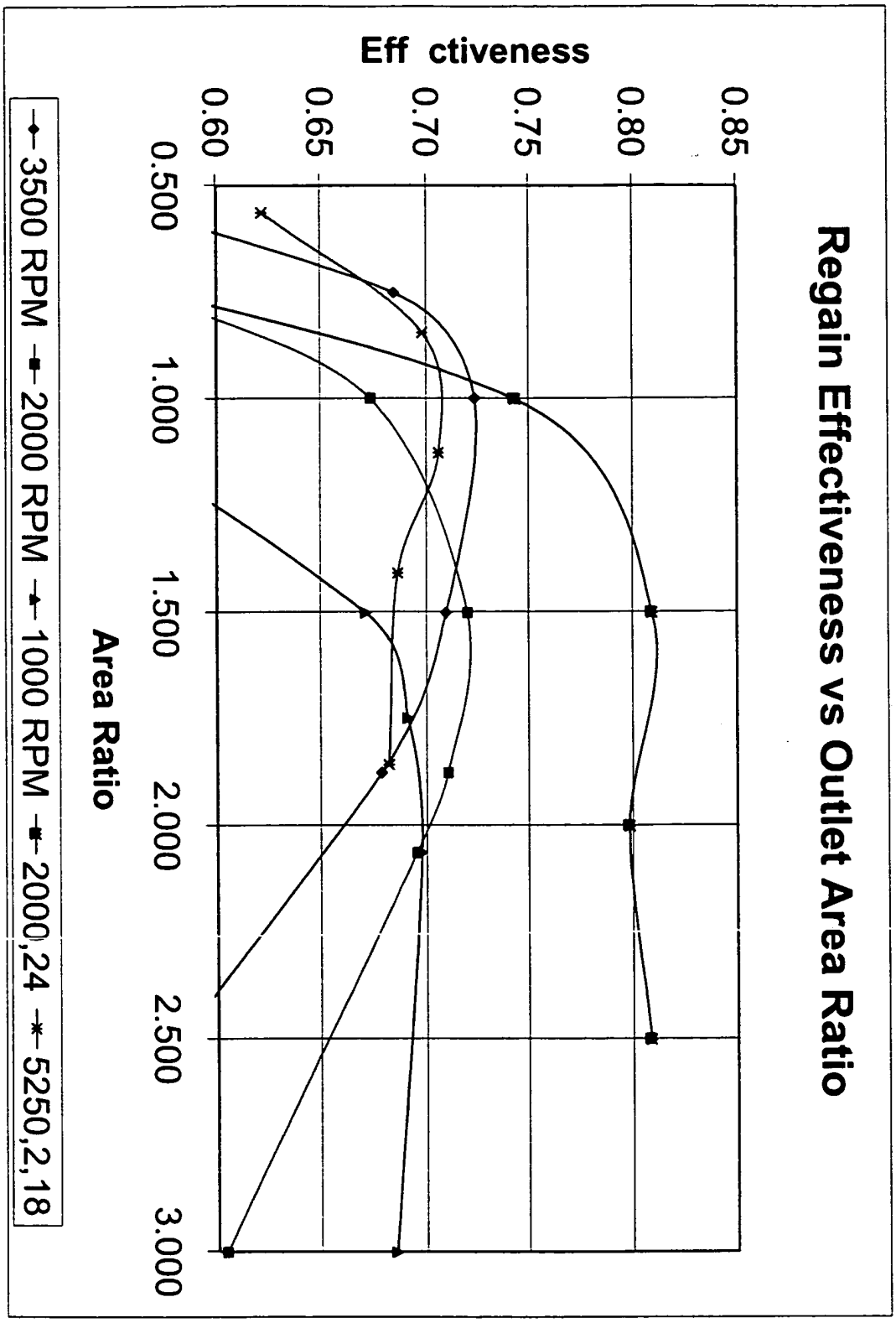

Regain Effectiveness vs Outlet Area Ratio
Eff ctiveness
0.85
0.80
0.75
0.70
0.65
0.60
0.500
1.000
1.500
2.000
2.500
3.000
Area Ratio
3500 RPM
2000 RPM
1000 RPM
2000,24
5250,2,18

FIG. 10

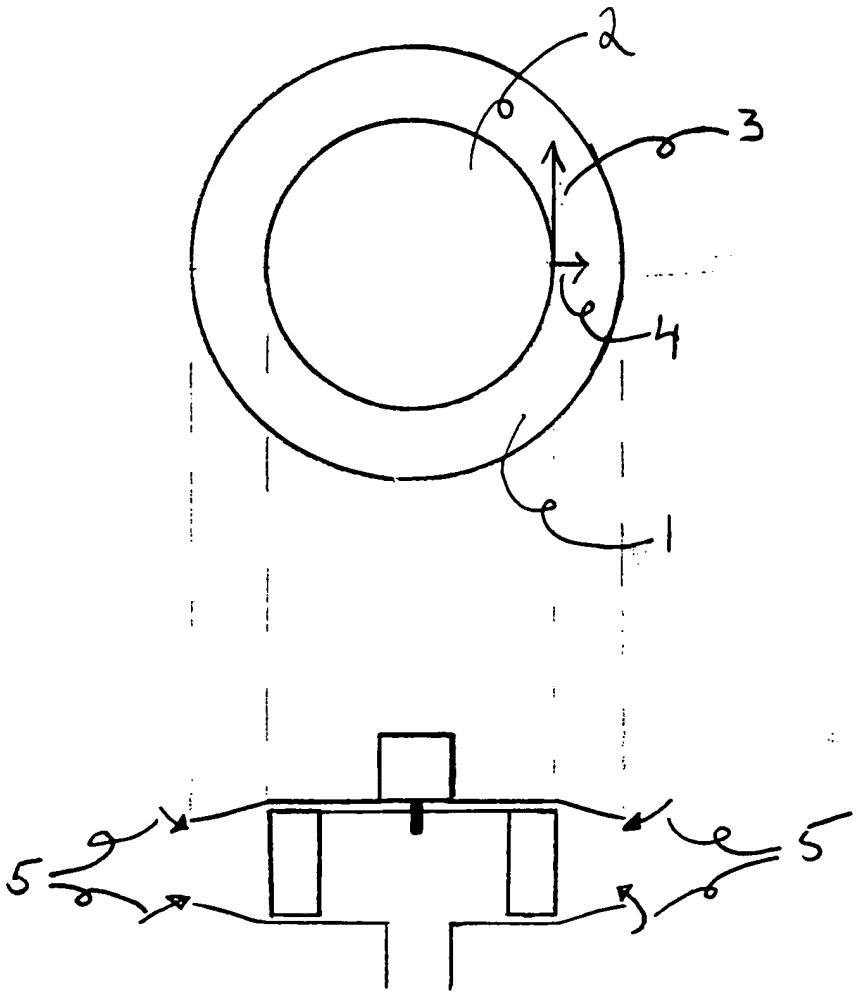


FIG. 11

BEST AVAILABLE COPY

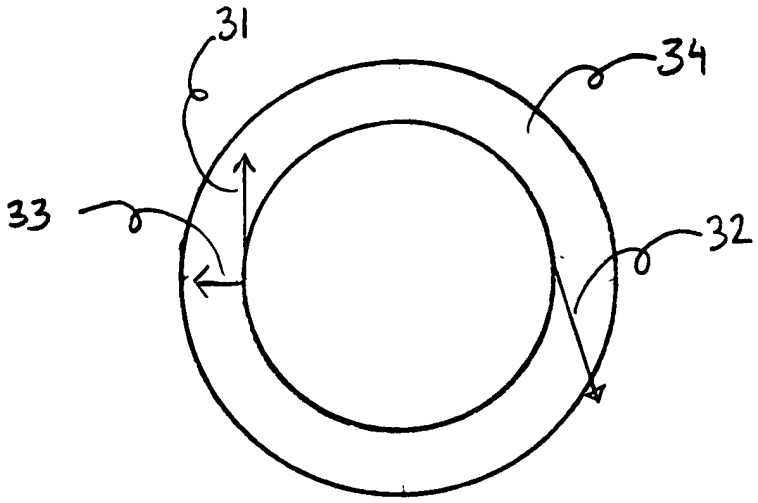


FIG. 12

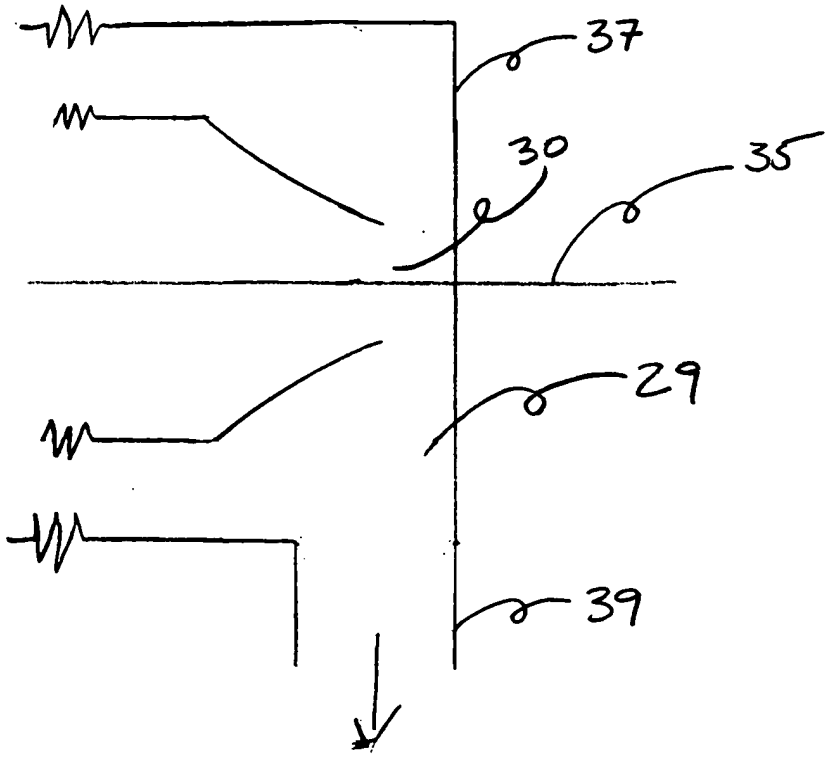


FIG. 13

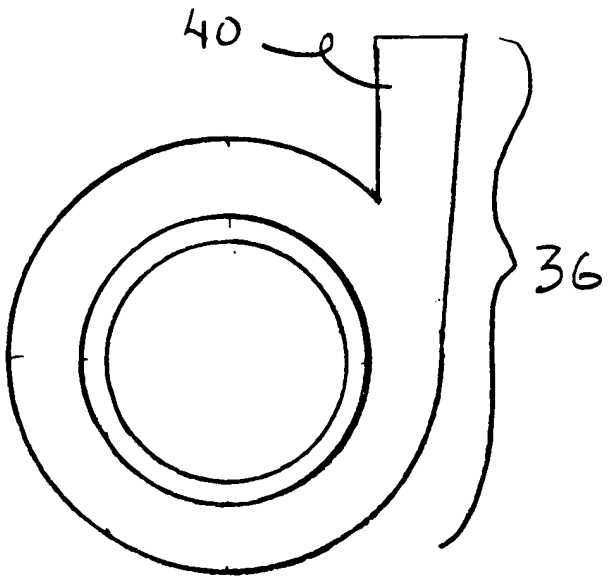


FIG. 14

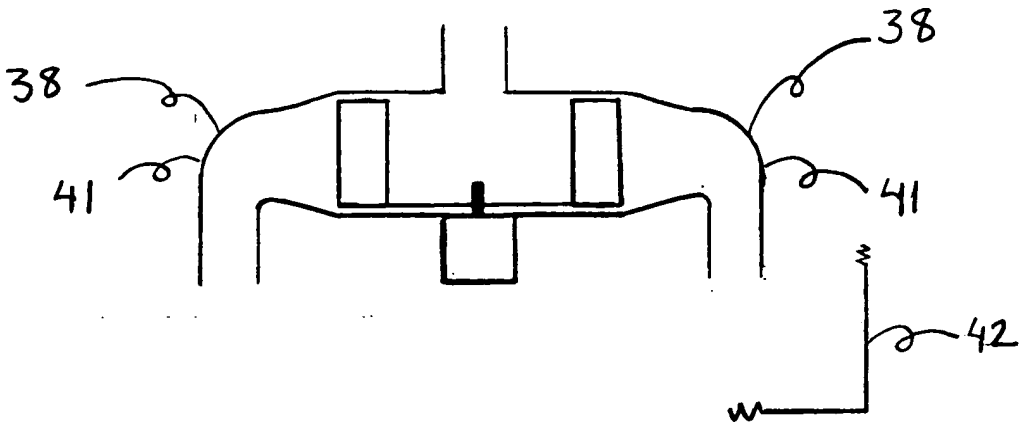


FIG. 15

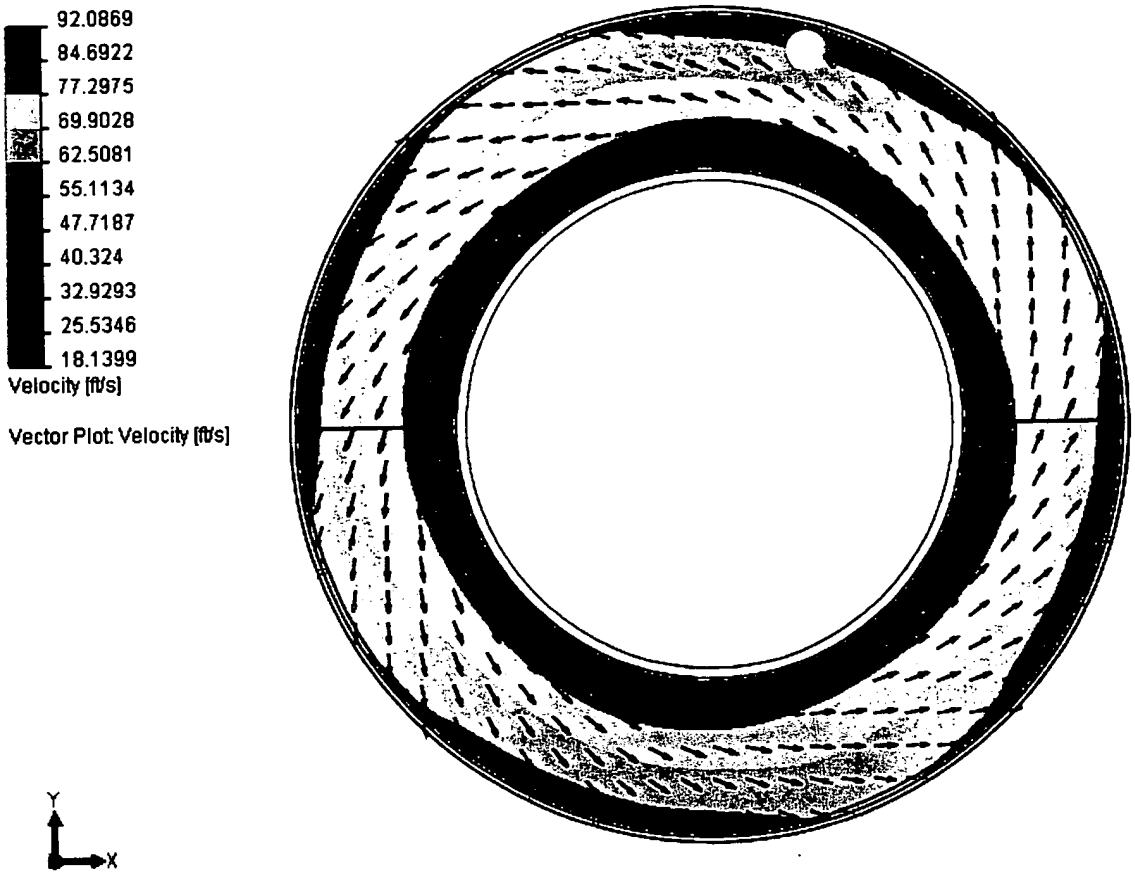


FIG. 16

BEST AVAILABLE COPY

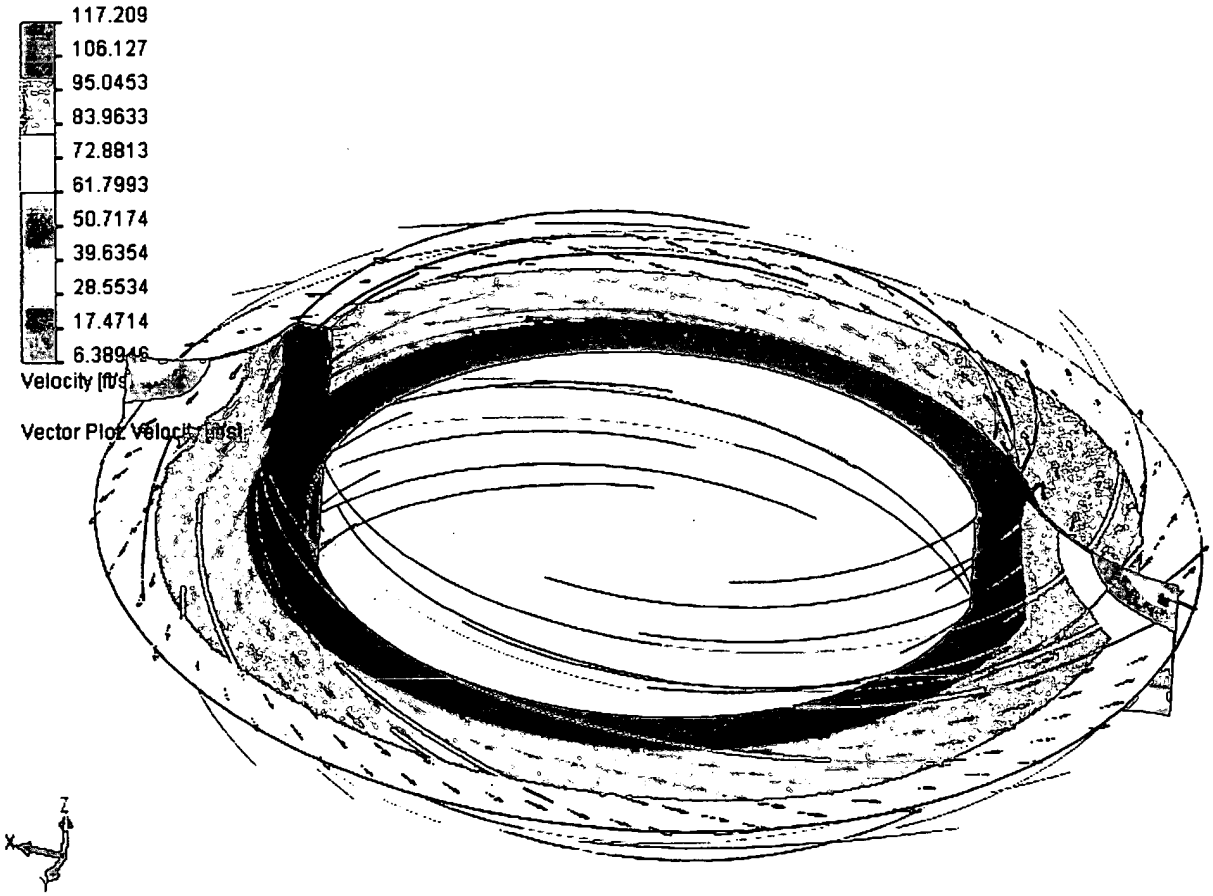


FIG. 17

BEST AVAILABLE COPY

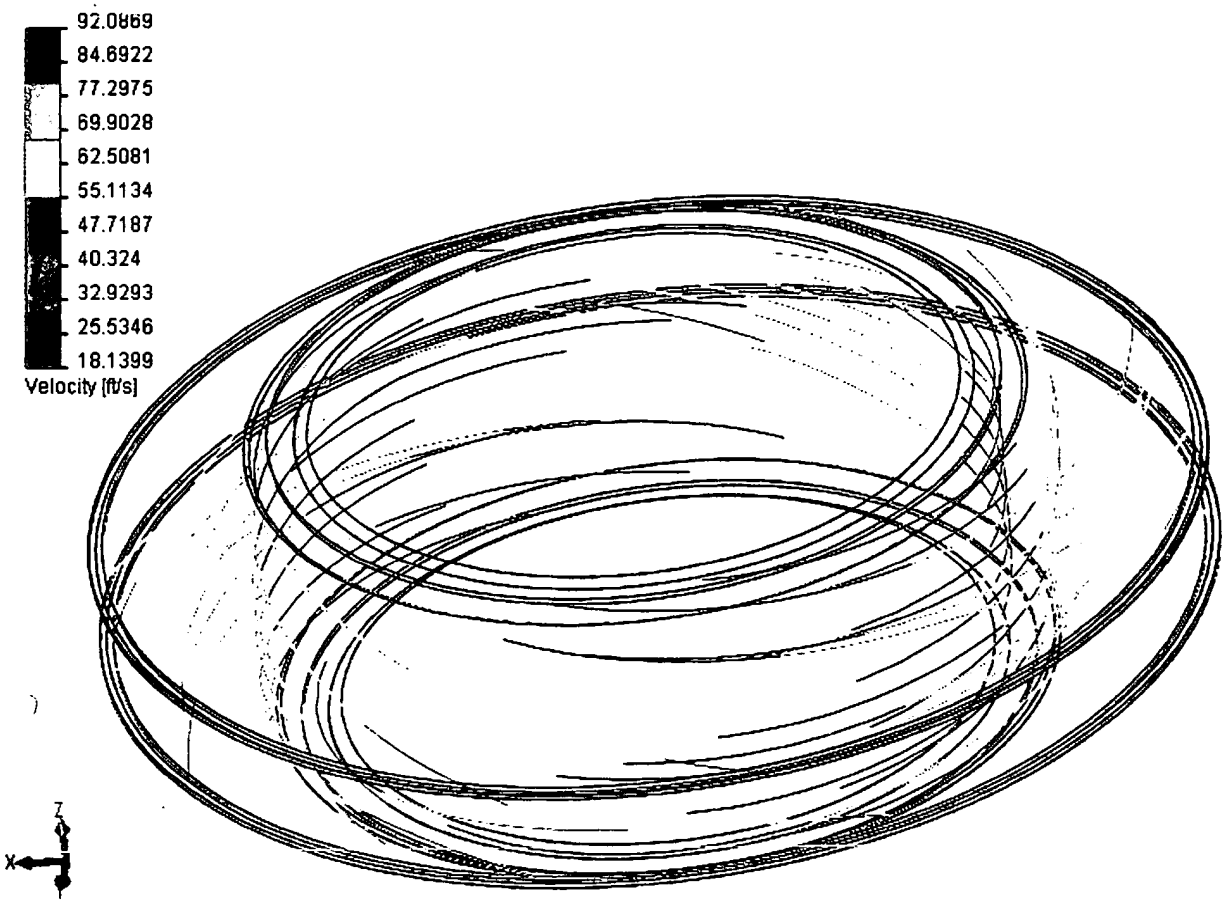


FIG. 18

BEST AVAILABLE COPY

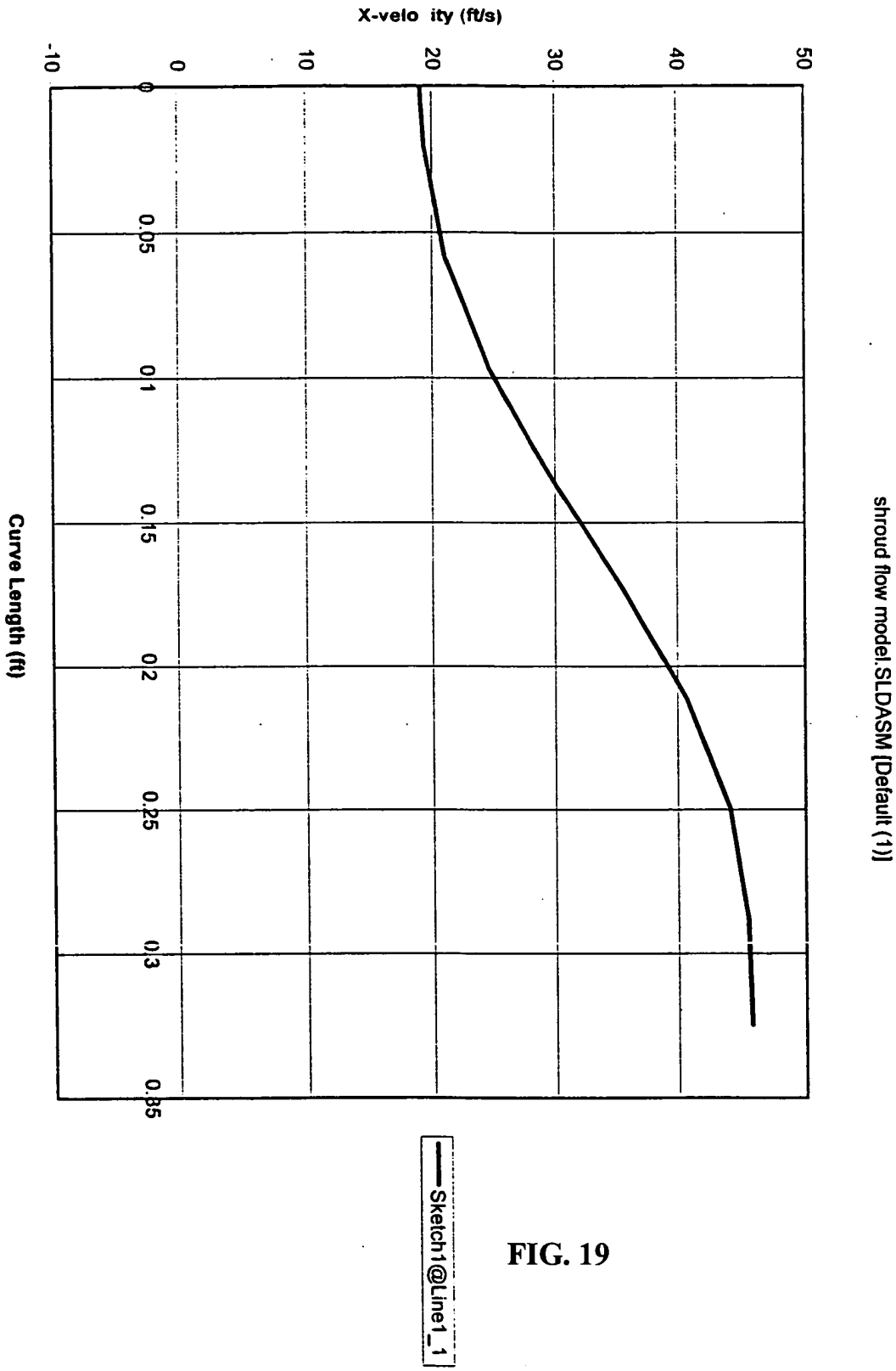

X-velo ity (ft/s)
-10
0
10
20
30
40
50
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
Curve Length (ft)
Sketch1@Line1_1
shroud flow model.SLDASM [Default (1)]

FIG. 19

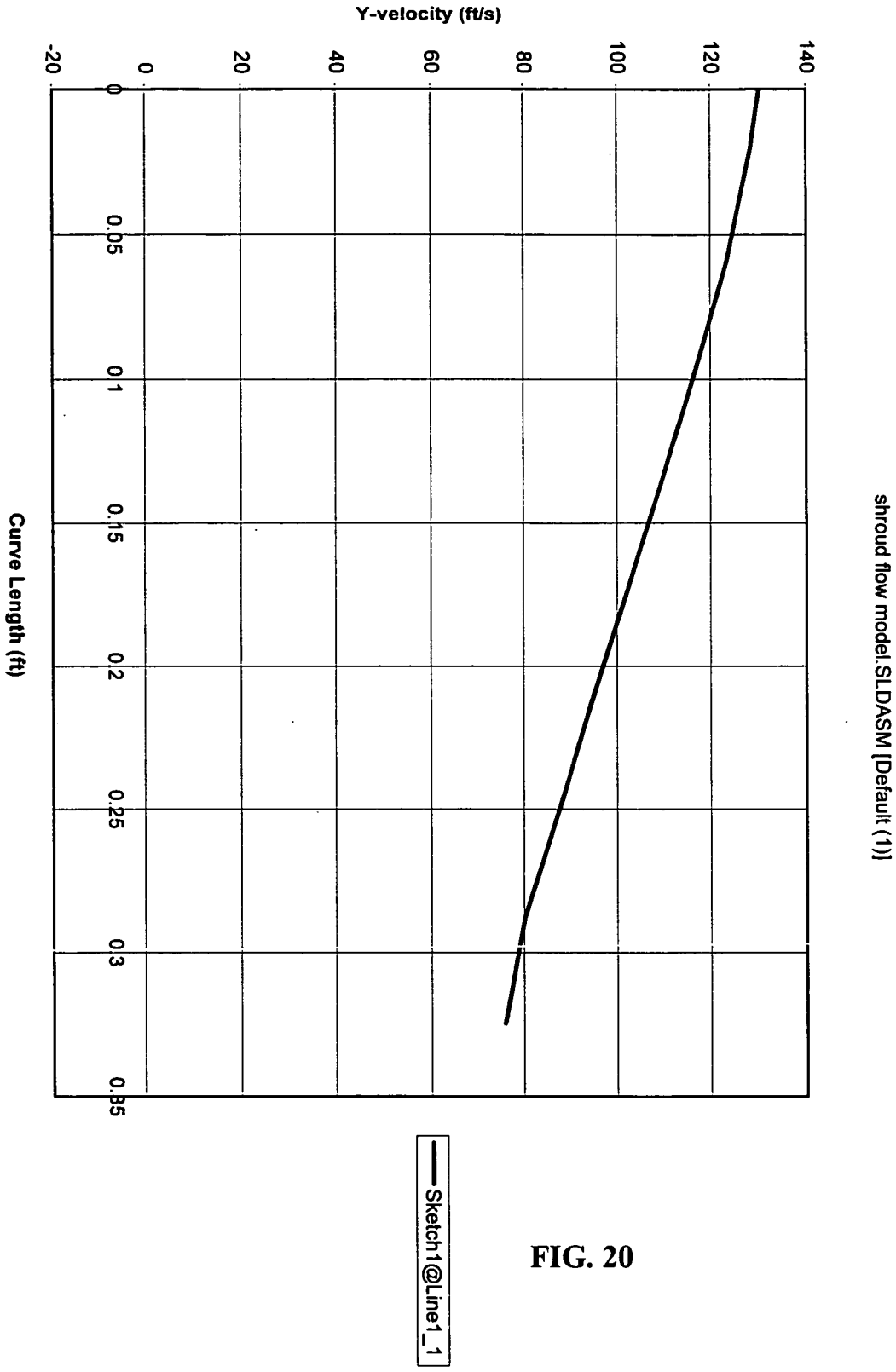

shroud flow model.SLDASM [Default (1)]
Y-velocity (ft/s)
140
120
100
80
60
40
20
0
-20
Curve Length (ft)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
Sketch1@Line1_1

FIG. 20

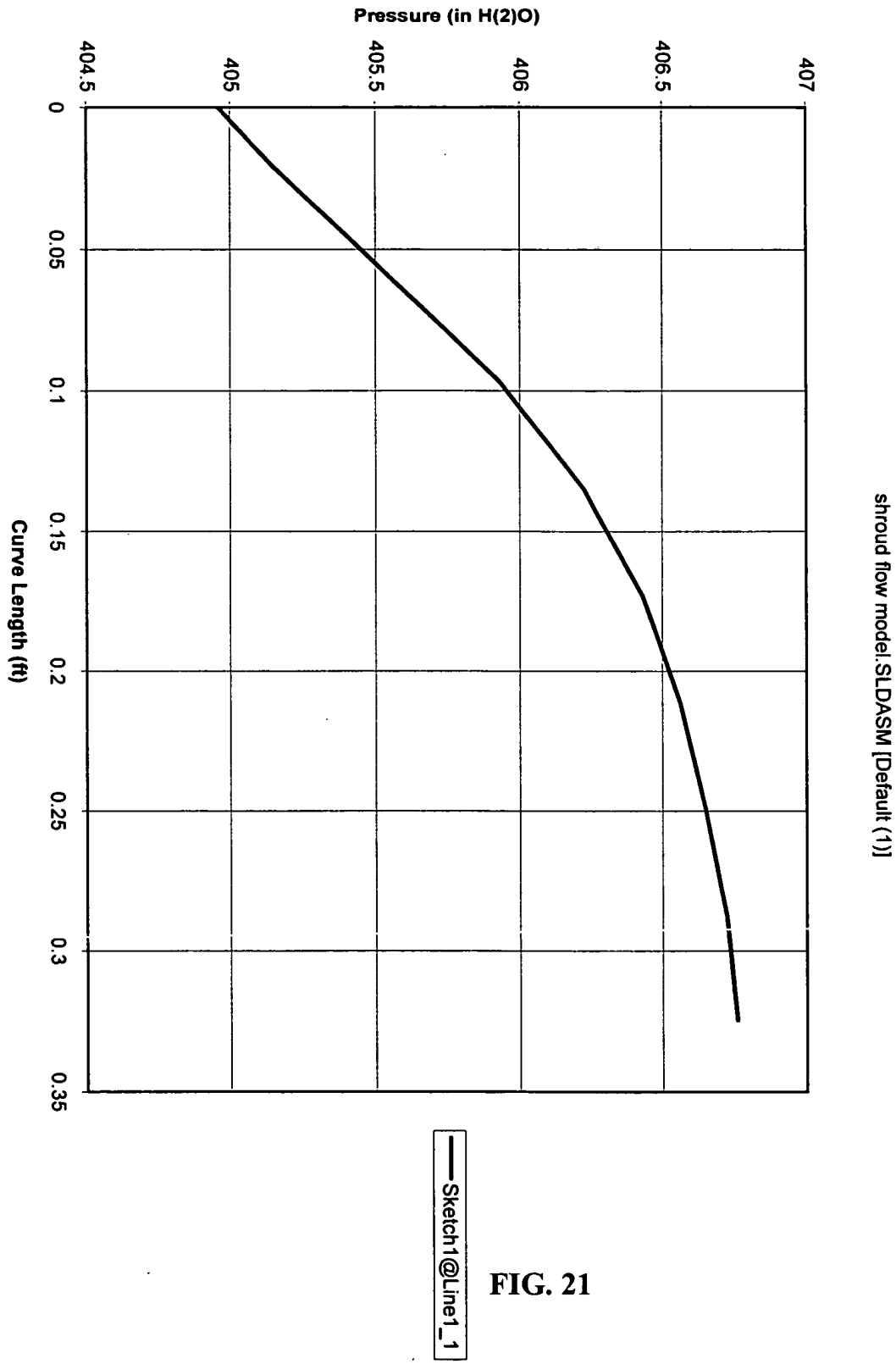

Pressure (in H(2)O)
404.5
405
405.5
406
406.5
407
Curve Length (ft)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
shroud flow model.SLDASM [Default (1)]
Sketch1@Line1_1

FIG. 21